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October 9, 2006

Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450
Attn: Examiner Natalie A. Pass
GAU: 3626

Dear Examiner Pass:

As a follow-up to my letter of May 5, 2006 to Supervisory Examiner Joseph Thomas, evidently the records regarding application serial number 09/458,820 have not been corrected as once again we have received the attached communication. This has been erroneously directed to the Taft law firm as this is not a matter handled previously or currently by us. It has been erroneously listed under our customer number, 30074.

As a courtesy to the filing attorney, I am forwarding your original communication to Mr. Wood of Rabin & Berdo, PC, customer number 23995. It would be appreciated if all parties would correct their records accordingly.

Sincerely,

Sharon A. Shelton
Sharon A. Shelton
Paralegal

/ss

c: Allen Wood, Esq. (w/original communication)

Attachment



UNITED STATES PATENT AND TRADEMARK OFFICE

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/458,820	12/13/1999	WUPING DONG	FUJI-111	9320

30074 7590 10/04/2006
TAFT STETTINIUS & HOLLISTER LLP
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EXAMINER

PASS, NATALIE

ART UNIT PAPER NUMBER

3626

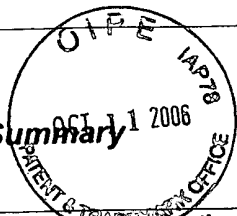
DATE MAILED: 10/04/2006

OCT 6 2006

Error should be Cust # 23995

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary



Application No.

09/458,820

Applicant(s)

DONG, WUPING

Examiner

Natalie A. Pass

Art Unit

3626

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 May 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Notice to Applicant

1. This communication is in response to the Appeal Brief filed 31 May 2006. Claims 1-6 remain pending.

2. In view of the Appeal Brief filed on 31 May 2006, PROSECUTION IS HEREBY REOPENED. A new ground of rejection is set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) request reinstatement of the appeal.

If reinstatement of the appeal is requested, such request must be accompanied by a supplemental appeal brief, but no new amendments, affidavits (37 CFR 1.130, 1.131 or 1.132) or other evidence are permitted. See 37 CFR 1.193(b)(2).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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4. Claims 1-2, 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schoolery et al., (U.S. Patent 5, 570,283), in view of article, "The Impact of Electronic Commerce on the Travel Industry" June 1996. URL: <<http://groups.haas.berkeley.edu/citm/publications/papers/wp-1017.html>>, hereinafter known as Bloch, Rangan (U.S. Patent 6,412, 073), Garback (U.S. Patent 5,237,499), and Vance et al., (U.S. Patent 6, 442,526).

(A) As per claim 1, Schoolery teaches a booking and issuing method of an intranet ticket booking and issuing system including a net server and an issuing terminal interconnected to said net server via a local area network, said issuing terminal being interconnected to external reservation systems which accept ticket booking requests via at least one communication line, and a personal computer being interconnected to said net server via said local area network and having an internet connection function, comprising

a booking step for making a booking from said personal computer to one of said external reservation systems (Schoolery; column 5, line 60 to column 6, line 2), said booking step including:

addressing a user's ticket booking commencement request to said local computer from said personal computer (Schoolery; column 6, lines 31-66).

Schoolery fails to explicitly disclose

sending home page addresses of said external reservation systems from said local computer to said personal computer via said local area network in accordance with said ticket booking commencement request.

However, the above features are well-known in the art, as evidenced by Bloch.

In particular, Bloch teaches

sending home page addresses of said external reservation systems from said local computer to said personal computer via said local area network in accordance with said ticket booking commencement request. (Bloch; page 7, paragraphs 8-10); Examiner interprets Bloch's teachings of "travel integrators who will understand customer needs, select the right information on the Web for them, package and present it attractively" (Bloch; page 7, paragraph 9) in order to allow for "direct customer access" (Bloch; page 7, paragraph 10) as a form of "sending home page addresses...";

generating, in said personal computer, booking data of a predetermined format, the booking data of the predetermined format including the booking number (Bloch; page 6, paragraph 4).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of Schoolery to include these strategic corporate travel management limitations, as taught by Bloch, with the motivations of enabling businesses to get more control of their travel expenses for corporate travel and enforcing corporate-wide travel policies while respecting every traveler's preferences (Bloch; page 6, paragraph 1).

Schoolery fails to explicitly disclose

storing in said personal computer the home page addresses sent from said net server into a memory and displaying information corresponding to the home page addresses relating to said external reservation systems on a screen for selection by the user;

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receiving, in said personal computer, a selection of one of said external reservation systems by the user and reading out the home page address of the selected external reservation system from said memory.

However, the above features are well-known in the art, as evidenced by Rangan.

In particular, Rangan teaches

storing in said personal computer the home page addresses sent from said net server into a memory and displaying information corresponding to the home page addresses relating to said external reservation systems on a screen for selection by the user (Rangan; Figure 2, Figure 3, Abstract, column 2, lines 10-20, column 4, lines 52-60, column 5, lines 35-44);

receiving, in said personal computer, a selection of one of said external reservation systems by the user and reading out the URL (reads on "home page address") of the selected external reservation system from said memory (Rangan; Figure 2, Figure 3, Abstract, column 2, lines 10-20, column 4, lines 52-60, column 5, lines 35-44).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combined applied references to include these limitations, as taught by Rangan, with the motivations of providing an interactive Internet portal that will enable users to accomplish pre-defined tasks such as navigation and interaction between web servers based on user pre-programming (user profiles) and of allowing a subscriber to safely and securely navigate to any of multiple destinations on the Internet with a single point-and-click and in this way greatly simplify on-line or network-based business transactions (Rangan; column 2, lines 1-7, column 3, lines 30-40).

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Schoolery fails to explicitly disclose

connecting said personal computer to a website of the selected external reservation system via the Internet and displaying a reservation screen of a web site of the selected external reservation system;

completing a booking through the website, between said personal computer and the selected external reservation system, by transmitting and receiving information data, including a booking number without the aid of said net server via the Internet; and

compiling predetermined data included in the information data and sending the booking data of the predetermined format to said net server via said local network;

an issuance step for issuing a booked ticket by said issuing terminal, said issuance step including:

receiving in said net server, the booking data of the predetermined format;

transmitting said booking number from said issuing terminal to the selected external reservation system via said at least one communication line.

However, the above features are well-known in the art, as evidenced by Garback.

In particular, Garback teaches

connecting said personal computer to an airline reservation system accessed with a modem over a wide area network (reads on "website of the selected external reservation system") via a wide area network (reads on "the Internet") and "the central processing unit is in communication with the various airline CRS [computerized reservation] systems" and "the central processing unit is further programmed to display the selected flights ... to the individual ... via the display means of the terminal 22" (reads on "displaying a reservation screen of the web

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site of the selected external reservation system") (Garback; see at least Figure 2, column 2, lines 54-63, column 3, lines 17-42, column 4, lines 33-41, column 4, line 63 to column 5, line 40, column 5, lines 57-61);

completing a booking through the website, between said personal computer and the selected external reservation system, by transmitting and receiving information data, without the aid of said net server via the Internet (Garback; see at least Figure 2, column 2, lines 54-63, column 3, lines 17-52, column 4, lines 33-41, column 4, line 63 to column 5, line 40, column 5, line 57 to column 6, line 10);

compiling predetermined data included in the information data and sending the booking data of the predetermined format to said net server via said local network (Garback; Figure 1, Figure 2E, Figure 4, column 3, lines 5-10, column 5, line 56 to column 6, line 10, column 6, lines 27-40, column 6, line 62 to column 7, line 30);

an issuance step printing (reads on issuing) a booked ticket by said issuing terminal, said issuance step including:

receiving in said net server, a confirmation message (reads on the "booking data of the predetermined format") (Garback; Figure 1, Figure 2E, Figure 4, column 3, lines 5-10, column 5, line 56 to column 6, line 10, column 6, lines 27-40, column 6, line 62 to column 7, line 30);

transmitting ticketing information including the "confirmation number" (reads on "booking number") from said issuing terminal to the selected external reservation system via said at least one communication line (Garback; Figure 1, Figure 2E, Figure 4, column 3, lines 5-10, column 5, line 56 to column 6, line 10, column 6, lines 27-40, column 6, line 62 to column 7, line 30).

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It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combined cited references to include the above limitations, as taught by Garback, with the motivations of providing a computer based travel planning system which allows an individual business traveler to efficiently and effectively book an itinerary for a specified venue, such as an upcoming meeting or seminar and in addition which conforms with a preset travel policy prenegotiated by a sponsoring organization and to do so in a fraction of the time previously required to book a business reservation, thus significantly lowering the cost of corporate travel (Garback; column 2, lines 9-16, column 3, lines 47-52).

Schoolery fails to explicitly disclose

storing a received booking data in said net server, and sending said booking number included in the received booking data to said issuing terminal from said net server; and receiving, in said issuing terminal, ticket issuing data from the selected external reservation system to issue the ticket.

However, the above features are well-known in the art, as evidenced by Vance.

In particular, Vance teaches

storing a received booking data in said net server, and sending "pre-trip booking data" (reads on "said booking number included in the received booking data") to said issuing terminal from said net server (Vance; Figure 1, Figure 14U, column 4, lines 1-37); and receiving, in said issuing terminal, ticket issuing data from the selected external reservation system to issue the ticket (Vance; Figure 1, Figure 14U, column 4, lines 1-37).

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It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combined applied references to include these limitations, as taught by Vance, with the motivations of providing a corporate travel planning and management system which operates on a corporate database environment that allows automated travel planning from a corporate traveler's desktop, pre-travel decision support to inform a corporation of planned travel expenditures before corporate dollars are spent (Vance; column 2, lines 36-42).

(B) Claim 2 differs from claim 1 in that claim 1 contains a method recited as a series of function steps whereas claim 2 contains features recited in a "means-plus-function" format. As the limitations of claim 1 have been shown to be obvious in view of the combined teachings of Schoolery, Bloch, Rangan, Garback, and Vance, it is readily apparent that the "means" to accomplish those method steps is obvious in view of the listed citations of the prior art. As such, the limitations recited in claim 2 are rejected for the same reasons given above for claim 1, and incorporated herein.

The motivations for combining the respective teachings of Schoolery, Bloch, Rangan, Garback, and Vance are as given in the rejection of claim 1 above and incorporated herein.

(C) As per claims 5-6, Schoolery, Bloch, Rangan, Garback, and Vance teach a method and system as analyzed and discussed in claims 1-2 above

further comprising: a step of receiving instructions for the predetermined data format (Garback; Figure 1, Figure 2E, Figure 4, column 3, lines 5-10, column 5, line 56 to column 6, line 10, column 6, lines 27-40, column 6, line 62 to column 7, line 30),

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wherein the generating step generates, in response to the instructions, booking data of a common data-format using data displayed on the reservation screen of the selected external reservation system and sends the booking data of the common data-format to said net server via said local area network, the common data-format being a data-format common to computers connected to said local area network (Garback; see at least Figure 2, column 2, lines 54-63, column 3, lines 17-42, column 4, lines 33-41, column 4, line 63 to column 5, line 40, column 5, line 56 to column 6, line 40, column 6, line 62 to column 7, line 30).

The motivations for combining the respective teachings of Schoolery, Bloch, Rangan, Garback, and Vance are as given in the rejection of claim 1 above and incorporated herein.

5. Claims 3-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schoolery et al., (U.S. Patent 5, 570,283), in view of article, "The Impact of Electronic Commerce on the Travel Industry" June 1996. URL:

<<http://groups.haas.berkeley.edu/citm/publications/papers/wp-1017.html>>, hereinafter known as Bloch, Rangan (U.S. Patent 6,412, 073), Garback (U.S. Patent 5,237,499), and Vance et al., (U.S. Patent 6, 442,526), as applied to claims 1 and 2 above, and further in view of Tagawa (5,732, 398).

(A) As per claim 3, Schoolery, Bloch, Rangan, Garback, and Vance teach a booking and issuing method as analyzed and discussed in claim 1 above.

Schoolery, Bloch, Rangan, Garback, and Vance fail to explicitly disclose converting, in said local computer, the booking data received from said personal computer into data of a predetermined hypertext or Internet language to generate data for fare adjustment; and storing the data for fare adjustment in said local computer.

However, the above features are well-known in the art, as evidenced by Tagawa.

In particular, Tagawa teaches

converting, in said local computer, the booking data received from said personal computer into data of a predetermined hypertext or Internet language to generate data for fare adjustment (Tagawa; see at least Figure 2b, Item 108, Figure 9B, Item 524, column 5, lines 6-27, column 9, lines 34-38, 59-64, column 18, line 46 to column 19, line 4); and

storing the data for fare adjustment in said local computer (Tagawa; see at least Figure 2b, Item 108, Figure 9B, Item 524, column 5, lines 6-27, column 9, lines 34-38, 59-64, column 18, line 46 to column 19, line 4).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of Schoolery, Bloch, Rangan, Garback, and Vance to include converting, in said local computer, the booking data received from said personal computer into data of a predetermined hypertext or Internet language to generate data for fare adjustment; and storing the data for fare adjustment in said local computer, as taught by Tagawa, with the motivations of reducing the labor costs associated with the sale of travel-related services by providing an interactive electronic travel-related service system for selling travel-related services and products where the system can function like a travel agent and where various purchases and

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reservations are made through the Internet (Tagawa; column 1, lines 16-21, column 2, lines 33-37, column 3, lines 1-4, column 9, lines 62-64).

(B) As per claim 4, the limitations in claim 4 differ from the limitations in claim 3 in that, claim 3 contains a method recited as a series of function steps whereas claim 4 recites system elements. As the method of claim 3 has been shown to be disclosed or obvious in view of the combined teachings of f Schoolery, Bloch, Rangan, Garback, and Vance, it is readily apparent that the system to accomplish those method steps is obvious in view of the listed citations of the prior art. As such, the limitations recited in claim 4 are rejected for the same reasons given above for method claim 3, and incorporated herein.

Response to Arguments

6. Applicant's arguments filed 31 May 2006 have been fully considered but they are moot in view of the new ground(s) of rejection.

7. The prior art made of record and not relied upon is considered pertinent to Applicant's disclosure. The cited but not applied references Bingham, United States Patent Number 6, 324, 517, Robertson, United States Patent Number 6, 269, 369, Baker III, United States Patent Number 6, 266, 648, Lynch, et al., United States Patent Number 6, 018, 715, and Zompa, et al., United States Patent 6, 937, 991 teach the environment of online travel reservation systems.

8. Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington D.C. 20231

or faxed to: (571) 273-8300.

For informal or draft communications, please label
“PROPOSED” or “DRAFT” on the front page of the communication
and do NOT sign the communication.

After Final communications should be labeled "Box AF."

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Natalie A. Pass whose telephone number is (571) 272-6774. The examiner can normally be reached on Monday through Thursday from 9:00 AM to 6:30 PM. The examiner can also be reached on alternate Fridays.

10. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Thomas, can be reached at (571) 272-6776. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Receptionist whose telephone number is (571) 272-3600.

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11. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Natalie A. Pass

August 7, 2006



JOSEPH THOMAS
SUPERVISORY PATENT EXAMINER

Notice of References Cited

Application/Control No.

09/458,820

Applicant(s)/Patent Under
Reexamination
DONG, WUPING

Examiner

Natalie A. Pass

Art Unit

3626

Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-5,570,283	10-1996	Shoolery et al.	705/5
*	B	US-6,324,517	11-2001	Bingham et al.	705/8
*	C	US-6,269,369	07-2001	Robertson, Brian D.	707/10
*	D	US-6,266,648	07-2001	Baker, III, Bernard R.	705/14
*	E	US-6,018,715	01-2000	Lynch et al.	705/5
*	F	US-6,937,991	08-2005	Zompa et al.	705/5
	G	US-			
	H	US-			
	I	US-			
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	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

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	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	Bloch, M. et al. "The Impact of Electronic Commerce on the Travel Industry" June 1996. [Retrieved from Internet 8/7/06]. URL: < http://groups.haas.berkeley.edu/citm/publications/papers/wp-1017.html >.
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

The Impact of Electronic Commerce on the Travel Industry

An Analysis Methodology and Case Study

Michael Bloch & Arie Segev
mb@pobox.com - segev@haas.berkeley.edu

June 1996

The Fisher Center for Information Technology & Management
Walter Haas School of Business
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Berkeley, CA 94720-1900
USA
<http://haas.berkeley.edu/citm>

"Failing to plan is planning to fail"

Abstract

This paper introduces an approach to analyzing the impact of electronic commerce on an industry, and describes how industry players can devise plans to take advantage of new business opportunities. We'll elaborate on this approach in the context of the travel industry. This paper draws on our work on classifying technologies used in electronic commerce, the business value of electronic commerce, and a current research project on the impact of electronic commerce on the travel industry.

The paper includes a review of the business drivers (pull) and technological advances (push) in the industry; an analysis of the impact on the competitive structure of the industry using Michael Porter's framework in the context of electronic commerce; an analysis of the capabilities of the different actors and how electronic commerce will allow them to improve, transform or redefine them. This leads to a cross-analysis of the possible strategies for each actor in the industry, based on the available and planned technologies (focusing again on electronic commerce). From these strategies, one can derive the need for technological support (infrastructure & systems) and the organizational impact for each actor. This should be helpful in assisting industry actors to develop their electronic commerce strategies.

The case study examines issues related to the management of travel distribution for leisure and corporate customers, and will especially study the reaction of travel agencies, computer reservation systems, product suppliers (e.g., airlines and hotels) and customers.

keywords: Internet-based electronic commerce, information technology, business value of technology, analysis methodology, travel industry

1. Introduction

The objective of this paper is to suggest a methodology for analyzing the impact of electronic commerce within an industry, looking at the new actors, configurations and strategies which will emerge, then focusing on a single firm to see how it should shape an electronic commerce strategy to seize new opportunities or react to the changes in its environment. This methodology should allow actors within an industry to analyze the impact of electronic commerce and their possible answers. We'll leverage some previous work on classifying frameworks for electronic commerce and will apply them to the travel industry as an example.

Section 2 introduces electronic commerce and looks at its impact on industries and companies. Section 3 develops our methodology, section 4 applies it to the travel industry, focusing especially on travel agencies, computer reservation systems and product suppliers. We conclude in section 5 by suggesting future research directions.

2. Electronic commerce, business value and the travel industry

Technology-driven change is revolutionizing every industry, from retail distribution to banking, from manufacturing to publishing and education. The pressure of new technologies (computer, networks, interactive television) combined with increasing customer demands (flexibility, convenience, customization, service, etc.) and hyper-competition (global markets, shrinking product cycles, increasing risk, rapid change) is requiring companies to redefine their strategies, products and processes.

Electronic commerce is one specific set of technologies (intelligent front-ends, public networks such as the Internet and multimedia data) which has an impact on these industries. For the first time, buyers and sellers can communicate directly over an information and data-rich channel. Consumer-oriented industries where service and information plays a large part in the buying process are especially affected: banking, travel and retail of commodity products (records, wine, books) would be good examples.

2.1 Electronic commerce

Electronic commerce can be defined as "the buying and selling of information, products, and services via computer networks"[18]. We would extend the definition by including the "support for any kind of business transactions over a digital infrastructure". The first widely available technologies supporting consumer-oriented electronic commerce are those linked to the Internet (principally the World-Wide-Web). These are obviously the most used today and will often be used in our examples, but this is likely to change in the future to include other technologies. We would consider all interactive media technologies, i.e., the combination of an *intelligent device*, supporting *multimedia* data (text, sound, pictures, video, etc.) connected to an *open network*. As such, multimedia kiosks and interactive television fit well as electronic commerce channels.

Extending the work of Konsynski [1], we've shown in [14] how technology could support the extended enterprise, companies who leverage technology to reach out of their boundaries and support business transactions with customers, suppliers and partners in an enhanced way. In summary, technology can assist companies

- at their *boundaries*, enhancing environmental information capture (e.g., through databases or public forums) and opportunities for mobile workers (e.g., sending employees in the field to be close from their customers, while maintaining links with internal information systems);
- in their *relations* with partners (e.g., agile corporations), suppliers (e.g., EDI) and targeted customers (e.g., inter-organizational information systems);
- in their access to *markets*, e.g., through information malls or electronic markets

Our focus in the rest of the paper will be on consumer-oriented electronic commerce, as opposed to business-to-business links (e.g., through EDI). Electronic commerce systems can be of significant value as a lever for new customer management strategies, mainly because they

- directly connect buyers and sellers
- support fully digital information exchange between them
- suppress time and place limits
- support interactivity and therefore can dynamically adapt to customer behavior
- can be updated in real-time, therefore always up-to-date.

We assume here that the reader is familiar with typical electronic commerce systems [18], such as information distribution, electronic catalogs, EDI systems and electronic markets.[2] is a good introduction to the effects of electronic commerce on the economy and society.

2.2 Business value & industry impact

Considering the new information and communication technologies which support electronic commerce and their use by leading-edge companies, we introduced in [12] a framework describing the business value of electronic commerce for a company and its impact on an industry. In summary, the business value is derived from:

- improving existing processes within an organization: improving product promotion through mass-customization and one-to-one marketing, offering new direct sales channel for existing products, reducing the cost of some processes (e.g., information distribution), reducing the time to market, improving customer service through automated service and round-the-clock operation, and finally improving the brand image, by offering electronic access to customers;
- transforming the way companies deal with customers, by accumulating knowledge on their detailed preferences and buying habits, targeting them with specific offers, and generally dealing with them in a personalized one-to-one way. Through the early adoption of electronic commerce, organizations also learn to deal with these new technologies, the organizational transformations they imply and the new processes which need to be introduced;
- redefining the products, processes and business models used today, leveraging technology to fundamentally change the ways products are conceived, marketed, delivered and supported.

The organization	Sources of business value
Improve it !	<ul style="list-style-type: none"> - product promotion - new sales channel - direct savings - time to market - customer service - brand image
Transform it !	<ul style="list-style-type: none"> - technological and organization learning - customer relations
Redefine it !	<ul style="list-style-type: none"> - new product capabilities - new business models

Figure 1: Sources of the business value of electronic commerce

By combining these effects of electronic commerce on a single company's strategy, and extending them at the industry level, we adapted Michael Porter's framework of competitive advantage and proposed the following impacts of the use of these new technologies:

- supporting generic strategies within an industry: cost advantage, product leadership or customer focus;
- an effect on the new entrants or new product introduction: through the diminishing costs of technology and the learning curve mastered by early adopters, market entry is facilitated. Paradoxically, through the accumulation of information on customers, their switching costs are increased, therefore raising entry barriers for potential new entrants. New product introduction is also facilitated through product innovation;
- an effect on the value systems with disintermediation and re-intermediation: suppliers use direct electronic contact to target customers directly, thereby suppressing the need for intermediaries, but this direct contact creates an information overload issue for customers, which turn to new intermediaries (information brokers) to help them integrate and sort through all the different offerings.

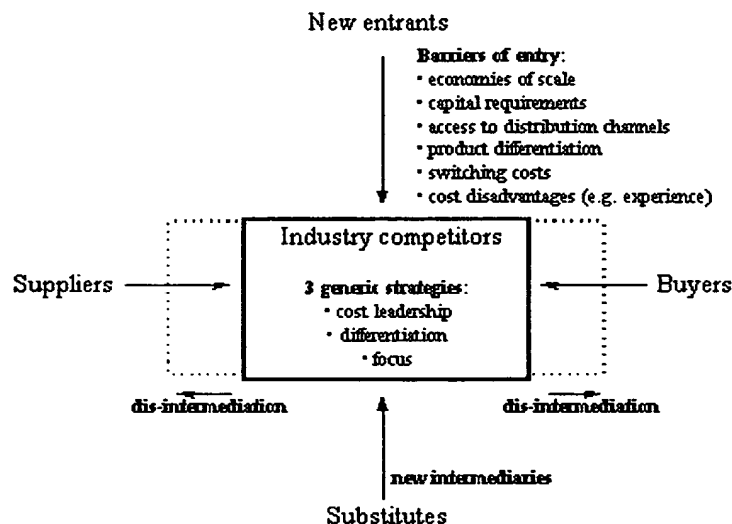


Figure 2: Effects of electronic commerce on an industry, adapted from Porter [15]

3. Analysis methodology

In order to analyze the impact of electronic commerce on an industry and shape the electronic commerce strategy of an actor within the industry, we suggest the following methodology, outlined in the [Figure 3](#):

1. review the business trends in the industry
2. review the different technologies that are related to that industry, with a focus on electronic commerce
3. at the industry level, use Michael Porter's modified framework to understand how these two will affect existing players strategies, open doors for new actors or new products and reconfigure the extended value chains
4. at one company's level, use the business value framework to shape the company's electronic commerce strategy, by leveraging the different business value components
5. take into account the impact of that strategy on the technological infrastructure and on the organizational processes, values and rewards systems.

Impact of electronic commerce in th...

These action steps will obviously impact the competitive situation within the industry, thus creating a feedback loop and competitors responses. Therefore, the whole analysis will need to be performed again in the future to update the plans.

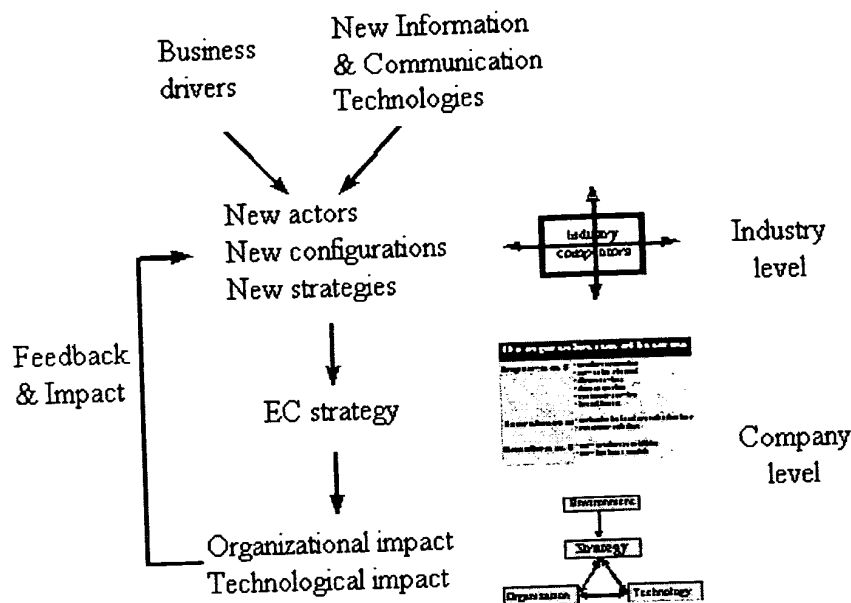


Figure 3: The analysis framework

We will mainly consider here technological answers to the changes in the environment, as we focus on the impact of electronic commerce, but there are other non-technological strategies which might be taken into account, such as alliances or partnerships to quickly acquire new capabilities or simply getting out of a specific business if there is no added value anymore.

This is a classical strategy formulation process, through a top-down approach, focusing first on the environment, then on the competitive response and finally on one firm's strategy. Another approach sometimes used with new technologies is bottom-up, starting from the power of technology to give some competitive advantage, often leveraging some unique capability of a firm.

When confronted with fast-changing environments, where accurate planning is not possible, a scenario planning approach [17] can be very useful to explicitly deal with uncertainty. [3] shows how this applies to the insurance industry, outlining how such an approach, by taking into account different scenarios for the future, can prevent choices that would be harmful in the future.

4. The case of the travel industry

In order to make the different steps in the proposed methodology more explicit, we will illustrate it in the context of the travel industry. We believe it is an excellent example of an industry which will be transformed by technology, and the first signs of such change are already appearing. Due to the cost constraints imposed by airlines (which, in the US, capped the commissions paid to travel agencies) and the direct channels employed by product suppliers, 1995 was the year where the largest number of travel agencies closed their doors in the US. Furthermore, this industry exhibits the product attributes favoring electronic markets, as described in [19], namely low asset specificity (items are interchangeable) and simple product description.

The data we use for this case study comes from interviews with major industry actors (corporate customers, computer reservation systems companies, product suppliers and software developers) as well as a review of the specialized industry magazines and conferences.

4.1 Industry background

General trends affecting the travel industry include increased competition through globalization (new players coming from abroad) and through deregulation (competitors coming from other industries), changing customer demands (different lifestyles, for instance the look for specialized trips such as adventure or edutainment and different demographics with increasing numbers of seniors) and increased expectations (more convenience and value, getting used to the customization of offerings). At the same time, customers are becoming ever more knowledgeable (direct marketing is certainly one of the drivers) and growing accustomed to automated technologies (such as phone-based systems and multimedia kiosks).

The travel industry is no different. Being one of the largest industries in the world means that it is a prime choice for better efficiency and increased added value (to get an idea of the size of the industry, in the US business market only, in 1994, a total of 38.4 million adults took 220 million trips, for about \$ 140 billion dollars). In many ways, the travel industry is the best example of an industry profoundly transformed by technology. Historically, that industry has been an early adopter of new technologies, for instance Computer Reservation Systems (CRS). As technology becomes more pervasive, traditional consumers begin

to use tools formerly reserved for travel professionals. In the case of CRS, consumers who have access to similar systems through their home computers and open networks (primarily the Internet) can now take over some functions traditionally performed by travel agents.

This should also be combined with the current increased demand for travel (foreseen to continue), especially in global markets (like the Pacific Rim) and the commission capping. It therefore seems to be an extraordinary period of time, where drastic changes are inevitable.

Faced with this need for change, the travel industry currently relies on an outdated distribution network, essentially relying on third-parties. In recent years, travel agencies made use of a specialized technology infrastructure and specific knowledge, to justify their cost. New technologies are progressively rendering this infrastructure obsolete as providers begin to understand how to deliver information directly to their customers, through phone, fax, electronic mail and increasingly, through multimedia interactive systems. This endangers the travel agencies, which will need to reposition themselves. The new providers, often driven by technology, also need help in adjusting their offerings to their customers, as they often use technology-driven strategies rather than business-driven. The current mass of undifferentiated travel offerings on the Internet is one example of such shortcomings.

Travel distribution costs are currently the third largest controllable expense for airlines (after people and planes) and travel & entertainment (T&E) represents the third controllable largest cost center for large corporate customers (after people and office space). Technology is therefore seen as a critical factor in measuring, controlling and reducing these costs. At the same time, new technologies bring added customer value, as new products, new processes and new strategies become possible. Some of these can be seen in the marketing area; with one-to-one marketing and mass-customization for example, suppliers now have the ability to understand each customer's needs, target them individually and deliver custom-made products.

This type of change will profoundly affect the landscape of the industry as we know it today. Some players will disappear, new players will emerge, and all of the current actors will have to change in order to survive. In which direction, whom, how, and how much are still open questions. Every organization currently active in the industry will be affected, from airlines to travel agencies, from large corporations to small and medium enterprises, and certainly individual travelers. It is crucial to understand these changes today, in order to plan for tomorrow.

4.2 Business drivers and new technologies

Our focus here will be on the distribution of travel products (air tickets, hotel rooms, car rentals, and related services). First, we need to introduce the different actors in the industry and to segment the different markets:

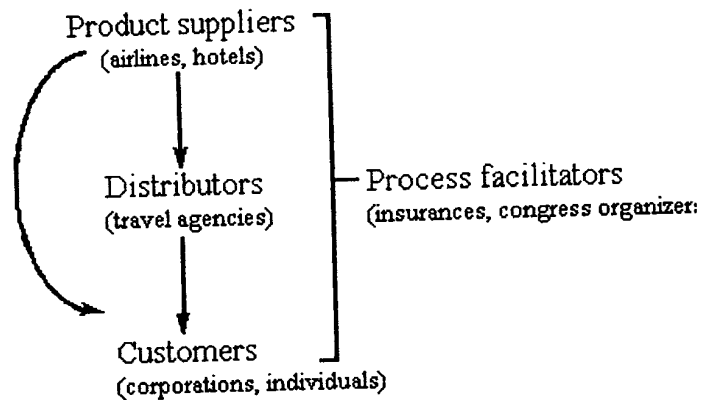


Figure 4: The travel industry chain

Figure 4 shows a generic industry chain; in the case of the travel industry, the product suppliers are airlines, hotels, rental cars, cruise and countries, regions or cities. The distributors are usually travel agencies, although direct distribution networks (e.g., telephone, kiosks) have been in use for some time now. Process facilitators are typically CRS (Computer Reservation Systems, also called now GDSes, Global Distribution Systems, the companies owning the databases where airlines, hotel and car rentals fares and timetables are stored. These are traditionally accessed through proprietary networks installed in travel agencies worldwide), credit cards companies, meeting planners, congress organizers, insurance companies and software developers. The customer segments can be presented in the following way:

Leisure travel	<ul style="list-style-type: none"> • independents travelers 	<ul style="list-style-type: none"> • traditional holiday, family visits, ...
Business travel	<ul style="list-style-type: none"> • independents travelers • corporate travel 	<ul style="list-style-type: none"> • those people who make travel arrangements themselves, and usually pay for their travel • travelers who are assisted by corporate travel department, and are reimbursed for travel expenses
Tours & groups	<ul style="list-style-type: none"> • leisure • business 	<ul style="list-style-type: none"> • cruises, tours abroad, etc. • incentive travel, business meetings, conventions, etc.

We will focus here mainly on the first two of these segments. Their business drivers and trends are different:

- the leisure segment is attracted by a convenient way to access information, low prices and somehow by personalized advice or the collection of past

experience

- the business travel is attracted by getting more control of their travel expenses, long-term pricing arrangements, a quick and easy way to make repeating travel arrangements, and, for corporate travel, enforcing corporate-wide travel policies while respecting every traveler's preferences.

We also need to focus on the various technologies which will change the name of the game in these market segments. Travel has been the focus of lots of automation in the past year, both in the back-office (automated reservation systems for airlines, hotels and car rental companies, CRS) and in the front-office (various tools automating a travel agent job). The new advances in technology mostly concern the consumer's direct access to information, through computer networks. Rather than keeping the information proprietary, and accessing it through a specialized infrastructure (such as a CRS, only available to travel agents), recent months have seen most providers set-up sites on the World-Wide-Web or open access to their reservations networks through specialized software. For instance, Delta Airlines offers schedules on its Internet Web site, Southwest Airlines adds a reservation and ticketing system, allowing to order and pay for tickets, while the Internet Travel Network offers a gateway to the Apollo CRS, allowing anyone to get schedule and fare information for any airline, and get the tickets through the mail or the closest travel agency.

Other advances in workflow systems for instance, have pushed corporations to redesign their travel management processes and support them with automated tools [10]. Such systems are also being standardized by CRS providers who now offer them as turn-key solutions, linked to their own databases. For instance, American Airlines' SABRE subsidiary offers corporations their Business Travel Solutions, a PC package which every traveler in a company can use to get travel and fare information, book air, hotel and cars and do his/her expense management when coming back. The program uses a local area network to communicate with a SABRE server on the company's premises, itself linked to the SABRE network via a dedicated communication line.

We need to mention here ticketless travel as an enabler for all sorts of automated delivery channels. The airline industry has finally caught up with hotels and car rentals in allowing customers to reserve seats through the phone, and not only using paper tickets. Customers get a number which matches their reservation record in the computer system. A simple ID or credit card in the airport is enough to have a boarding pass delivered. With that disappears the last physical object formerly needed to reserve a trip. As is discussed later, this will enable new products and new intermediaries to appear.

Future advances in technology which will impact the competitive landscape include the wider availability of high-bandwidth networks (allowing video clips to be sent to every home), intelligent agents which will do intelligent pricing comparisons, the emergence of Internet kiosks in public areas, increasing the number of people having access to such systems and interactive television.

4.3 Impact at the industry level

To understand this type of impact, we can use the framework presented in Figure 2. As discussed earlier, we first look at the impact on generic strategies of existing actors:

- supporting a cost advantage strategy: technology can be used here to promote products in a cheaper and more interactive way. Through the use of multimedia information (sound, image, video), customers are able to better understand the products (be it a hotel room, a rental car or a beach) without the need for specialized personnel on the service provider side. This also saves money in terms of printing (quickly outdated) advertising material, handling sales through a phone hotline and delivering paper tickets;
- supporting a product leadership strategy: technology can definitely enhance some product attributes, especially for service industries such as travel where most attributes are intangible. In our case, electronic commerce can add to the convenience of getting information about travel and purchasing, for instance by freeing customers from time or place constraints. Moreover, even though it is not exactly clear today how electronic commerce adoption will unfold in the next few months, it seems clear that it will be a major success factor in a few years, therefore making it important to learn now about these new technologies and their organizational impacts in order to maintain leadership;
- supporting a customer focus strategy: technology can help corporations maintain and enhance relations with their customers, for instance memorizing their preferences and anticipating their needs or targeting them with specific offers; mass-customization is another avenue, offering customers products especially targeted to their needs, for instance by integrating sub-products from different suppliers and repackaging them in one offer.

Then, we need to look at how these new technologies will offer opportunities for new products and/or new actors. An example of new product attributes could be knowledge database accessible on-line, and gathering travel experiences. Before making your choices for a specific destination, you would review this database and see (good and bad) recommendations about specific providers in that destination. This database could also support e-mail exchanges between travelers and would create a virtual community of travel enthusiasts.

Finally, we can examine the intermediation issue within the industry. Very often, intermediaries have been created by an information asymmetry, or arbitrage opportunities. New technologies improve the diffusion of information to everyone, thereby reducing the power of existing intermediaries. Also, as mentioned above, the use of a public shared infrastructure (such as the Internet) rather than a proprietary network (such as a CRS) removes a strong advantage from the former exclusive users of such a network, the travel agencies. These agencies will have to provide a different added value service than simply being an information intermediary; we'll see in the next section what other opportunities are open to them.

Although disintermediation will definitely happen in that industry, re-intermediation will also be seen [16]. This means that customers won't always find it desirable to go to different providers directly to get information (such as timetables or fares), and then compare it, but will sometimes pay an intermediary to do it for them. In other words, they'll need to reduce their search costs. This could be done by a travel agency, but also by an automated agent or, until this technology matures, by a CRS offering direct customer access or a new kind of online travel agency. The Internet today is home to hundreds of providers (airlines, hotels, travel agents) offering their services directly. As in other industries, there will be a need to differentiate among all these offerings, and strong brand names will prevail. As such, the choice or recommendation of travel magazines, well-known airlines or early adopters able to capture public interest will be of prime importance. For instance, the Condé Nast Traveler magazine created a Web site to leverage their brand name and create a virtual community of travel fanatics [6]. These are the type of new actors one can expect to see emerge in the travel industry.

4.4 Impact at the company level

Figure 1 presented ten components of the business value of electronic commerce, i.e., ten ways electronic commerce could generate tangible business benefits for corporations. Of course, not all are applicable to all cases, and companies will need to choose which components to incorporate in their own strategy, based on their specific situation. Knowing which of the three generic strategies outlined in the section above they want to pursue is a first step. In this section, words in *italics* refer to the ten components outlined in Figure 1 or to the effects of electronic commerce summarized in Figure 2.

We review here possible electronic commerce strategies for some of the major actors in the travel industry, focusing on finding new sources of added value, in a world where information is increasingly a commodity.

4.4.1 Travel agencies

We start with travel agencies, probably the most endangered organizations, as their job is increasingly being seen as replaceable by technology. Today, travel agencies play multiple roles: information brokers to pass information from product suppliers to customers, transaction processors to print ticket or forward money, and advisors to provide added-value information to their customers, assisting them in their choice of specific products and destinations. The first two of these roles will increasingly be played by technology, going directly to the customers to provide them with information and process their transaction needs. Therefore, agencies will have to focus on the third role, and differentiate it according to their target market. [5] uses a network design perspective to show how travel agents reduce complexity in the marketplace, and how technology can sometimes also play that role, at least for certain segments of the market.

If we consider the corporate travel agencies first, their objective should be to position themselves as travel process management consultants. Corporations are increasingly being targeted directly by product suppliers and CRS, and need advice to better manage these relationships. Being independent, travel agencies have a unique role to play here, advising their customers on which technologies to implement, how to redesign internal business processes to get the full benefits from these technologies, how to benchmark themselves against the best practices in the industry, etc. Electronic commerce technology can be used to increase convenience (*product leadership*) in buying travel (workflow automation, links with information servers, reservations from a laptop while traveling), reduce transaction costs (*cost advantage*, by suppressing unnecessary human intervention) and improve the service delivered to individual users (*customer focus*).

Travel agencies catering to the needs of leisure travelers should have a different approach. The issue here is about differentiation from the competition, knowing that low costs alone won't suffice. We believe technology has a role to play in enhancing the shopping experience. Today, going to a travel agency to purchase a holiday package is frequently not a very pleasant experience -- long wait times, shuffling through paper catalogs and waiting for phone calls to suppliers are not attractive. Technology could eliminate those shortcomings through kiosks, supporting multimedia clips, databases of relevant travel, visa and destination information, etc. (*product promotion and new product capabilities*).

We could also imagine that large travel agencies will go further than technology alone and take notice of the IKEA concept. The Swedish furniture giant transformed its stores in family destinations by themselves, with play areas for kids, family restaurants, etc. Adapted to the tourism world, one could imagine a travel superstore, with areas for destination (Australia, Asia, Alaska, etc.) or type of travel (cruises, sports holiday). Each area or booth would have a specialist of the particular type of travel, supported by technology to display multimedia clips, make bookings, etc. Depending on the state of broadband communications infrastructure, some of that information could be delivered to a home PC or television. The *experience* of shopping is probably the only thing that electronic media will never be able to fully replicate, and should therefore be fully exploited in the real world.

A major issue in the travel agency industry is the entry barriers that technology increasingly represents. Implementing the changes outlined above will require large amounts of capital and expertise, and small players might find it harder to compete, leading to increasing industry concentration. On the other hand, the open nature of the Internet can reduce barriers for small expert and creative companies. How the two will balance out remains to be seen.

4.4.2 Computer Reservation Systems

CRS today have an enviable position, they already have a developed technology infrastructure, links with major corporate customers and good connections with product suppliers. Following the success of the Internet, major CRS recognized that their added value would come from the information they possess, rather than the technology they can implement across the world [11]. Therefore, SABRE for instance recently outsourced some of its data and network operations [4], and Apollo developed United Connection, an on-line service offering travel reservations through a PC interface.

Migrating to the Internet is a first step (*new sales channel*), but CRS will have to become better at integrating all the travel information currently available. The Web today supports hundreds of travel agencies, small products suppliers, and other tourism destinations. What is currently lacking is good navigational support. We have described elsewhere [13] our vision of travel integrators who will understand customer needs, select the right information on the Web for them, package and present it attractively before processing their transactions in a secure way (*new product capabilities*). Such systems will provide destination information (on the city or region, good restaurants and museums, required visas), find the best way to get there (airlines, hotels), and offer to buy multiple products useful for such a trip (from travelers checks to cameras). A precursor of such a system can be seen in *Travelocity*, a SABRE-initiated project on the Internet [8].

While starting all these new distribution channels, CRS face a major issue, which is to upset their major customers, travel agencies. It is a delicate balance to transition its business from a distributor-model to a direct customer access one, and for now, CRS have often partnered with smaller companies or created their own start-ups to clearly delineate their different channels.

4.4.3 Product suppliers

In the context of the whole industry, the general trend has been to sell directly to customers, in order to reduce the large distribution costs encountered today.

This sometimes causes inconveniences to the customer, which airlines for instance seek to remove by offering added benefits to customers reserving directly. Swissair for instance recently announced that customers reserving by phone through their own offices could get their boarding pass in the mail, and therefore come to the airport only minutes before the airplane leaves (*customer relations*). This benefit is not offered to customers going through travel agencies.

It appears that there will be a power struggle between airlines (and other product suppliers) and travel agencies. Today, the latter represent about 80% of the sales of product suppliers, and airlines cannot afford to upset their best customers. In an industry where product suppliers will undoubtedly be the winners, they might want to provide incentives for the losers to cooperate, by reducing their losses. Practically, we could imagine airlines increasing the travel agencies commission on complex travel arrangements (bundling with other products, or complex work to establish the tickets) in return for their losing the quick, easy and repetitive ticket business which will increasingly be handled by technology.

Product suppliers such as airline companies, hotel chains or destinations will also try to leverage electronic commerce as new distribution channels, reducing the cost of their promotion, and improving their reach. The key here is to find a differentiating factor from the competition, as most of these online marketing efforts appear similar. Being part of a larger construct, with good advertising and a strong brand name should be key to drive online traffic and ultimately sales. An information mall or a travel integrator as described above could be a good position for a smaller product supplier.

The issue for these product suppliers is to maintain their sense of identity online, and keep an access to their customer data. More and more, the exact knowledge of customer profiles, the details of their buying processes and the linked products they buy is key to successful marketing. If product suppliers lose a direct customer access, they might get pressured by their distributors, which will increasingly own this precious information.

4.5 Organizational and Technological impact

It is widely acknowledged today that technology cannot be introduced in organizations without considering the impact on organizational processes, the corporate culture, incentive and rewards systems, etc. [7] Methodologies such as Business Process Redesign [21] link technology introduction and organizational change very strongly. In the context of electronic commerce [20] showed that in the case of the US grocery industry, EDI introduced without process change showed virtually no benefits, whereas linking organizational redesign and technology introduction increased inventory turns by 50-100%.

Therefore, after deciding on a strategy on how to leverage electronic commerce, each of our actors should examine the impact on its organizational processes and technology infrastructure. [9] has shown how corporate travel management processes could be redesigned using some of the technology we described. Similarly, product suppliers, computer reservation systems & al. will have to alter their processes to support dealing directly with customers through electronic channels.

5. Conclusion

It was stated in the introduction that travel was only one of the industries which will be strongly affected by electronic commerce. Therefore, the changes that we already see emerging there are of primary interest and can be extrapolated to other industries. The frameworks outlined in this paper should be helpful to support decision-making processes while shaping strategies to react or take opportunity of the fast changing world of electronic commerce.

Our future work will follow two tracks, one concerned with validating the analysis methodology and adapting it, the second concerned with using it to study the impact of electronic commerce on other industries, such as the financial services industry, especially retail banking.

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any comments or suggestions ?

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